UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/695,499	10/23/2000	Joshua Coates	SCAL.P0001	1575

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ART UNIT	PAPER NUMBER
2172	9

DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

Office Action Summary	Application No.	Applicant(s)
	09/695,499	COATES ET AL.
	Examiner	Art Unit
	Joon H. Hwang	2172

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2003* .

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-14 and 16-21* is/are pending in the application.

    4a) Of the above claim(s) *4 and 15* is/are ~~withdrawn from consideration~~. *Canceled*

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-14 and 16-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other:

DETAILED ACTION

1.   The applicants canceled claims 4 and 15 and amended claims 1 and 11 in the

amendment received on 5/30/03.

The pending claims are 1-3, 5-14, and 16-21.

Response to Arguments

2.   Applicant's arguments with respect to claims 1 and 11 have been considered but

are moot in view of the new ground(s) of rejection.

The applicants added in claims 1 and 11 the limitations of virtual file system

(VFS) for storing file system information for a single file system, the client for receiving a

unique file identifier from the VFS, a plurality of distributed object storage managers

(DOSMs) for receiving requests, including said unique file identifier, to access said

storage center, and storage cluster, comprising a plurality of intelligent storage nodes,

for storing files of a single file system across said intelligent storage nodes and for

servicing access requests from said DOSMs. These limitations are addressed in the

following rejection.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   Claims 1-3, 6, 10-14, 17, and 21 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Popelka et al. (U.S. Patent No. 6,081,883) in view of Bergsten (U.S.

Patent No. 6,360,306), and further in view of Xu et al. (U.S. Patent No. 6,324,581).

With respect to claim 1, Popelka discloses a file processor (a virtual file system,

VFS) for storing file information to manage a plurality files of a network storage system,

wherein a client of the network storage system accesses the file processor (VFS) to

conduct file system operations over a first channel (abstract, fig. 1, fig. 6, lines 42-67 in

col. 2, lines 1-7 in col. 3, lines 35-45 in col. 5, lines 25-31 in col. 8, lines 62-67 in col. 11,

and lines 1-16 in col. 12). Popelka discloses presenting a single system image to an

application or a client (lines 31-39 in col. 3 and lines 25-31 in col. 8) concerning the VFS

for a single file system. Popelka discloses file names and file operations, such as

writing and reading (lines 35-45 in col. 5 and line 62 in col. 11 thru line 17 in col. 12),

wherein a file name in writing operation teaches a unique file identifier in one way

concerning receiving a unique file identifier from the VFS. Popelka discloses storage

processors and storages (a storage center) for storing a plurality files of the network

storage system, wherein the client access the file processors and storages (the storage

center) to download files over a channel (fig. 1). Popelka discloses a plurality of storage

processors (distributed object storage managers, DOSMs) for receiving requests,

including a unique file identifier, to access the storages and storages (storage

cluster/intelligent storage nodes) for storing files of a single file system across the

storages and for servicing access requests from the storage processors (DOSMs, fig. 1,

lines 35-58 in col. 5, line 62 in col. 11 thru line 17 in col. 12, lines 60-67 in col. 15, and

lines 1-13 in col. 16). Concerning a virtual file system for a single file system, Bergsten,

further in detail, discloses a storage controller emulates storages for its local host

computer virtually (lines 30-36 in col. 3, lines 15-38 in col. 6, and line 41 in col. 7 thru

line 3 in col. 8). Bergsten discloses mapping a single host (virtual) address to a single

or multiple physical address(es) (line 16 in col. 9 thru line 22 in col. 11). Bergsten also

discloses multiple copies across the multiple storages (abstract, lines 15-36 in col. 3,

lines 16-25 in col. 4, lines 16-28 in col. 9) to improve data access performance.

Therefore, based on Popelka in view of Bergsten, it would have been obvious to one

having ordinary skill in the art at the time the invention was made to utilize a virtual file

system for emulating network storage systems for its local host system and to utilize

multiple copies across the multiple storages for faster data access performance.

Popelka and Bergsten are silent on downloading files over a second channel being

different than the first channel. However, Xu discloses downloading files from storages

over a second channel being different than a first channel, which a request for the files

is received from (fig. 3, fig. 4, lines 59-67 in col. 9, and lines 1-25 in col. 10). Therefore,

based on Popelka in view of Bergsten, and further in view of Xu, it would have been

obvious to one having ordinary skill in the art at the time the invention was made to

have a second channel from a storage to a client for faster processing for downloading

files.

With respect to claim 2, Popelka discloses a network processor (a storage port)

for accessing the file processor (VFS) and the storage processors and storages (the

storage center, abstract, fig. 1, lines 55-65 in col. 2, lines 59-67 in col. 5, and lines 1-4 in col. 6).

With respect to claim 3, Popelka discloses additional network processors for backup (additional storage ports in the event of a failover condition, fig. 1).

With respect to claim 6, Popelka discloses a storage processor (DOSM) comprising a cache for write (fig. 1). Popelka discloses a read cache in another processor (network processor, fig. 1). Thus, the read cache could be utilized additionally in the storage processor for storing a subset of files stored in storages.

With respect to claim 10, Popelka discloses a (content delivery) network (fig. 1 and lines 46-58 in col. 4).

The limitations of claim 11 are rejected in the analysis above of claim 1, and the claim is rejected on that basis.

With respect to claim 12, Popelka discloses a virtual file system (lines 66-67 in col. 2, lines 1-7 in col. 3, and lines 8-62 in col. 8) and metadata containing file information (lines 62-67 in col. 11 and lines 1-17 in col. 12). These teach generating a file identifier from the virtual file system for a file stored in the storages. Popelka discloses a client requesting file operations (receiving a file identifier) and processing the file operations (retrieving and transmitting data, lines 66-67 in col. 2, lines 1-7 in col. 3, lines 60-67 in col. 15, and lines 1-13 in col. 16).

The limitations of claim 13 are rejected in the analysis above of claim 2, and the claim is rejected on that basis.

The limitations of claim 14 are rejected in the analysis above of claim 3, and the claim is rejected on that basis.

The limitations of claim 17 are rejected in the analysis above of claim 6, and the claim is rejected on that basis.

The limitations of claim 21 are rejected in the analysis above of claim 10, and the claim is rejected on that basis.

5.   Claims 5 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Popelka et al. (U.S. Patent No. 6,081,883) in view of Bergsten (U.S. Patent No. 6,360,306) and Xu et al. (U.S. Patent No. 6,324,581), and further in view of Gall et al. (U.S. Patent No. 6,356,929).

With respect to claim 5, Xu further discloses exchanging metadata for file information between movers (processors, fig. 2, and lines 41-67 in col. 26) for data consistency. Popelka, Bergsten, and Xu are silent on a multicast protocol. However, Gall discloses a multicast protocol for distributing data (abstract, fig. 4, lines 66-67 in col. 5, and lines 1-11 in col. 6). Therefore, based on Popelka in view of Bergsten and Xu, and further in view of Gall, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a multicast protocol for distributing data among processors for data consistency.

The limitations of claim 16 are rejected in the analysis above of claim 5, and the claim is rejected on that basis.

6.   Claims 7 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Popelka et al. (U.S. Patent No. 6,081,883) in view of Bergsten (U.S. Patent No.

6,360,306) and Xu et al. (U.S. Patent No. 6,324,581), and further in view of Tzelnic et

al. (U.S. Patent No. 5,948,062).

        With respect to claim 7, Popelka further discloses LRU maintenance for a cache

teaching caching data for files in high demand (lines 14-16 in col. 12). Popelka,

Bergsten, and Xu are silent on a load balancing. However, Tzelnic discloses balancing

loads among data movers (processors, lines 4-14 and 62-67 in col. 10 and lines 1-5 in

col. 11) for parallel processing. Therefore, based on Popelka in view of Bergsten and

Xu, and further in view of Tzelnic, it would have been obvious to one having ordinary

skill in the art at the time the invention was made to balance loads among the

processors (DOSMs) for parallel processing.

        The limitations of claim 18 are rejected in the analysis above of claim 7, and the

claim is rejected on that basis.

7.   Claims 8-9 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Popelka et al. (U.S. Patent No. 6,081,883) in view of Bergsten (U.S. Patent No.

6,360,306) and Xu et al. (U.S. Patent No. 6,324,581), and further in view of Beardsley et

al. (U.S. Patent No. 6,304,980).

        With respect to claim 8, Popelka, Bergsten, and Xu are silent on an additional

storage center located geographically disparate from the prime storage center.

However, Beardsley discloses a secondary storage site (an additional storage center)

located geographically disparate from a primary storage site (the prime storage center, abstract, fig. 1, fig. 2, lines 13-16 in col. 4) for backup. Therefore, based on Popelka in view of Bergsten and Xu, and further in view of Beardsley, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have an additional storage center for backup.

With respect to claim 9, Popelka, Bergsten, and Xu are silent on a dynamic failover mechanism. However, Beardsley discloses the dynamic failover mechanism for servicing access requests from a secondary storage cite located geographically disparate (a disparate storage center) in the event that a failure occurs in a primary storage center (a prime storage center, abstract, fig. 8, lines 40-67 in col. 5, and lines 1-34 in col. 6). Therefore, based on Popelka in view of Bergsten and Xu, and further in view of Beardsley, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a dynamic failover mechanism for a disaster recovery system.

The limitations of claim 19 are rejected in the analysis above of claim 8, and the claim is rejected on that basis.

The limitations of claim 20 are rejected in the analysis above of claim 9, and the claim is rejected on that basis.

Conclusion

8.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joon H. Hwang whose telephone number is 703-305-6469. The examiner can normally be reached on 9:30-6:00(M~F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y Vu can be reached on 703-305-4393. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or
proceeding should be directed to the receptionist whose telephone number is 703-305-
3900.

Joon Hwang
August 9, 2003

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